

**2006 White House Closing the Circle Award
Recycling, Fort Campbell, KY
"Fort Campbell, Zero Waste is the Goal"**

Overview: Fort Campbell Army Installation consists of over 105,000-acres located within portions of four counties and two states (Kentucky and Tennessee). It is literally the size of a small city, supporting over 29,300 military personnel and nearly 56,700 family members both on and off post. While Fort Campbell supports a civilian workforce of over 4,200 people we are also home to the second largest Army retirement area in the country with over 133,405 retirees utilizing installation benefits. Despite the large scope of our installation's people and geography, the Environmental Division has set a dramatic and ambitious goal, zero waste disposal by 2028. Through continual improvement of a diverse educational, reuse, and recycling management initiative Fort Campbell and the installations that follow will achieve this unprecedented military installation goal.

Year at a Glance:

- ✓ Fort Campbell has diverted waste from the waste stream by deconstructing buildings slated for demolition.
- ✓ Concrete and masonry materials from the demolition of permanent buildings are ground and reused as gravel road base on the installation.
- ✓ Finalized C&D specifications and contractors tool kit to enhance aggressive C&D waste management to exceed sustainable goals.
- ✓ In FY05 the Fort Campbell Qualified Recycling Program Committee doubled the recycling outreach initiatives verses last year.
- ✓ Due to the Fort Campbell Pollution Prevention Operation Center we have achieved an 84.6% reduction in hazardous waste pounds disposed resulting in a 90.1% disposal cost reduction since 1992.

Hazardous Materials Reduction and Reuse and Waste Reduction via the Pollution Prevention Operation Center (PPOC):

- ✓ Over 27,700 gallons of antifreeze was recycled onsite during 04/05 providing a total program cost avoidance of \$207,750.
- ✓ The PPOC supports 266 part washer customers with 320 on-site parts washers. Through the PPOC solvent recycling program, during 04/05, 45,830 gallons of solvent was recycled providing a 96% reduction in hazardous waste disposal since 1994. This program has also provided procurement cost avoidance of \$286,437 while program operating costs in 04/05 have decreased from \$436,000 to \$200,000.
- ✓ The PPOC provides testing of various types of batteries before disposal. This program tested 36,941 batteries, of which 20,728 passed state of charge test and were re-issued (55% pass rate) providing a \$1,536,938 procurement cost avoidance and a \$44,640 disposal cost avoidance.
- ✓ The PPOC collects and tracks used oil and fuel for recycling. In 04/05 this program collected 292,918 gallons for recycling while generating over \$49,878 for Morale Welfare and Recreation programs through the sale of used oil/fuel.
- ✓ In FY05 Fort Campbell recycled 86,430 lbs. of lead acid batteries generating over \$4,511 for Morale Welfare and Recreation programs. All lead acid batteries turned into DRMO are recycled.

Pilot Projects/Studies:

Fort Campbell is regularly involved with pioneering studies to discover and improve diversion methods.

- ✓ **Debris Management Study:** A revision to the Installation Design Guide, along with C&D reduction recommendations and a waste management contract specification were developed as part of a C&D Waste Management Study, Phase 1, conducted in 2004/2005. A Contractor's Tool Kit assists contractors in developing bids and management of construction of waste.
- ✓ **100% Waste Sort:** Sorting provides specific waste streams by type and volume. This information allows the Environmental Division to chart the most effective course of action, identify corrective measures and

- provide continual improvements. A waste sort of several schools resulted in the notification that recyclables were disposed in refuse containers. Schools have since made corrective actions.
- ✓ **E-Waste Recycling Study:** (initiated 12/05): Electronic waste is now accepted at the Fort Campbell Recycle Center.
 - ✓ **Army Food Program Study:** Collects perishables from food generating facilities on the installation to redistribute to local food banks.
 - ✓ **Composting In Schools:** This pilot project partnering with Bi-County Landfill starts with two schools and strives to teach students the importance of returning vital organic material to the soil.

Accomplishments:

Construction and Demolition Waste Diversion: Construction and demolition waste accounts for about 65% of Fort Campbell's waste stream annually. Fort Campbell has instituted aggressive construction and demolition diversion initiatives significantly reducing the amount of materials placed in the landfill. In 2005, over half, 61% of all construction and demolition waste generated was diverted from the landfill for recycle or reuse. Under a new initiative useable materials generated from demolition and construction waste must be reused on-site. (e.g., trees removed from project sites must be ground for erosion control and concrete ground for on-site road base.)

Concrete Waste Diversion: Fort Campbell has targeted concrete and masonry materials as major waste streams for diversion. Concrete in all its forms including: whole buildings, footings, foundations, slab sections, etc, that would normally go to the Construction and Demolition landfill for disposal are now stockpiled and ground into gravel of various sizes. This gravel is used on Fort Campbell for road and parking lot surfacing and in drainage swales. Steel rebar within the concrete is also recycled. In FY05 the installation ground over 7,640 tons of concrete and realized significant savings by reusing aggregate rather than purchasing new material.

Waste Diversion through Building Deconstruction: Deconstruction is the systematic method of "unbuilding" the structure so that lumber, windows, doors, and other valuable building materials may be reused by the purchaser for new construction projects. Concrete and masonry is stockpiled, ground, and reused. Deconstruction diverts 50% - 90% of a total building from landfilling.

Paper/Cardboard Recycling: Fort Campbell recycled 3,046.56 tons of paper products in FY05 generating over \$40,000 in revenue. Through our mandatory residential and office recycling policy we assure paper and cardboard stay within the recycling loop. In addition Fort Campbell provides desk-side recycling containers as well as large recycling bins for our curbside service.

Solid Waste & Recycling On Board Weighing System: All refuse and recycling collection trucks are equipped with an on-board weighing system which weighs installation solid waste and recyclables per location for greater point source management. Areas exhibiting poor participation are identified and education efforts concentrated accordingly. This system allows us to examine and modify outreach programs to maximize recycling participation.

Recycling Through Recycling: Fort Campbell is using Fort Drum's unwanted garbage containers for aluminum can recycling receptacles. The standard rubber garbage receptacles transform easily with a recycling logo and a hole for aluminum can deposits. Aside from the diversion benefits, this economical alternative lasts longer, is washable, and costs less compared to traditional cardboard collection containers.

Wood Debris and Yard Waste Diversion: In FY 05 Fort Campbell partnered with local off-post landfill to divert 431 tons of wood debris to be ground into mulch. Yard waste, storm and tree debris (limbs, branches,

misc. trees) are chipped and used for mulch. Mulch is used for erosion control, post beautification, and as a soil amendment for landfill capping. Excess repairable pallets are sold for repair and for reuse in industry.

Waste Diversion Fluorescent Light Bulb Recycling: Fluorescent bulbs from around Fort Campbell are collected and recycled offsite. In FY05, this simple endeavor yielded an approximant 8 ton diversion.

Waste Diversion through Metal Recycling: Fort Campbell has diverted approximately 2,420 tons of metal this year through collection, shredding and recycling at the PPOC. Among the materials recycled, empty petroleum, oil and lubricant containers, aerosol cans, Freon cylinders, and paint cans from unit locations are collected and shredded for recycle. Additionally, Fort Campbell is one of the few installations that recycle concertina wire. This barbed-wire type material, not normally accepted due to difficulty in handling, is baled and sold as scrap metal.

Educational Outreach:

Fort Campbell strives to educate present and future generations by holding and participating in environmental events throughout the community.

The 35th Annual Army Earth Day: Featured more than 40 volunteers from various federal, state and local environmental agencies working to educate and entertain more than 2,000 Fort Campbell students, faculty, soldiers and family members.

Recycling and solid waste reduction is stressed through interactive demonstrations, scavenger hunts, arts and crafts, and displays.

Volunteers from the Environmental Division and surrounding community partnered to donate their time, scrap materials and sewing machines to make over 2,000 cloth bags for Earth Day attendees. These notebook-sized cloth bags made from old jeans, sheets, curtains and blankets featured environmental messages and replaced the standard paper or plastic bags used to collect brochures and handouts at the fair.



Fanny and Freckles the Recycling Mascots

Fanny, Freckles, Dee Dee, Ducky and Friends: With handcrafted costumes the Environmental Division presents “Fanny, Freckles, Dee Dee, Ducky and Friends”. These mascots teach P2 lessons to pre-school, elementary and middle school students. Among their appearances: the Wenk Magic of Recycling Show (2,995 in attendance), the Extravaganza of Extreme Science Experiments (600 in attendance) and regular performances at the Fort Campbell library for readings of environmental stories.

Paper Contamination and Educational Emails: Paper recycling containers contaminated with garbage is one of the biggest challenges to the paper recycling program. Using a multitude of public outreach techniques including a mass email blitz to over 10,000 Fort Campbell addresses, we strive to combat this destructive problem. In addition to specific educational emails we reach our population monthly with general electronic recycling newsletters and advertisements. Through this zero waste media we can quickly spread the environmental message while allowing equally quick feedback.

Earth Day Every Day! In a new awareness campaign the Environmental Division has found a quantitative way to measure our school’s recycling commitment, a year long competition. Each school gains points by choosing environmentally friendly activities from a list created by the Environmental Division. Students and facility monitor their school’s point standing on the Environmental Division’s website with the highest scoring school awarded on Earth Day.

America Recycles Day Giveaways and Displays: To reach a broad cross section of the diverse Fort Campbell population the Environmental Division maintains display booths at numerous locations during America Recycles Day week. These booths provide recycling information as well as giveaways such as pens, pencils, ice scrapers, and coloring books made from 100% recycled content.

Fort Campbell Recycling Newspaper for Kids: This year all fourth and fifth graders received the first edition of “Trash Talk” in their classrooms. This quarterly newsletter provides recycling information specific to Fort Campbell as well as games and puzzles on general environmental stewardship. The student is encouraged to complete the newsletter in the classroom then to bring it home to share with family.

Magic of Recycling Magic Show: All Fort Campbell elementary schools enjoyed recycling entertainment during the “Magic of Recycling” educational performance. The magic show uses recyclables as magic props and emphasizes waste reduction through reuse and recycling.

Other Outreach: The Environmental Division publishes new recycling incentives and educational outreach materials on both the installation’s newspaper “The Courier” and the local cable station. In addition, Environmental Division personnel partners with Fort Campbell Housing to provide monthly litter removal days at local housing areas. This activity serves to beautify while teaching waste reduction, recycling, and reuse principals to residents.

The Power of Cyberspace: Recycling information, forms, and educational materials including articles, PowerPoint slides, posters and handouts are available via the Fort Campbell Environmental online learning center at <http://www.campbell.army.mil/envdiv/index.htm>. This website contains general overviews of all environmental programs as well as full text PDF versions of the Environmental Quality Officer Handbook and a Fort Campbell Kids Recycling page.

Paper Reduction Campaign: To significantly reduce the amount of unwanted mail and unsolicited advertising circulars Fort Campbell residents are encouraged to opt out of mailing lists with the Direct Marketing Association.

Conclusion: Fort Campbell is taking full advantage of innovative, insightful, and extensive measures to ensure optimal reutilization of our resources. By investing in cutting edge technology such as the on-board weighing system we are committed not only a 70% diversion now but a 100% diversion by 2028. Through creative programs and dogged determination we are paving the way for other installations to drastically reduce, reuse and recycle their solid waste. What was once known as “solid waste” is now a viable and important resource. These new resources help to sustain and repair our installation. From deconstruction to concrete shredding, from an on-board weighing system to our pilot project for drywall recycling, we are developing, researching and executing the programs and methods necessary to achieve long term environmental excellence and close the loop.



Acceptable items:



Have Questions? For more information please call the Solid Waste and Recycling Program at: 798-9762
The Recycling Center 798-4527 or the Convenience Center 798-5695

Recycle It!

Fort Campbell created this refrigerator magnet for our recycling awareness campaign.